

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Daisuke YAHATA et al.

Application No.: 10/815,772

Confirmation No.: 9959

Filed: April 2, 2004

Art Unit: 1791

For: ALIPHATIC POLYESTER MULTI-FILAMENT Examiner: Leo B. Tentoni
 CRIMP YARN FOR A CARPET, AND
 PRODUCTION METHOD THEREOF

DECLARATION UNDER 37 CFR 1.131

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We, Daisuke Yahata, Kazuya Matsumura, Shinnichi Nishihata, Motokatsu Nishimura, Tatsuro Mizuki, Masakatsu Umeda, Takehiko Miyoshi and Kenzo Kubo, declare under penalty of perjury under the laws of the United States of America as follows:

1. We are the joint inventors who filed this application. We are each familiar with the contents of this application.

2. We are aware that, in the Office Action dated July 28, 2009, the Examiner has rejected the pending claims of this application in view of Japanese Patent Publication No. 2002-105752 (hereinafter "the Okawa reference"). We are also aware that the Okawa reference published on April 10, 2002, which is the critical date for the Okawa reference. We are further aware that, in the Office Action dated July 28, 2009, the Examiner stated that our previous declaration under 37 CFR 1.131, which was filed at the Patent Office on April 15, 2009, was allegedly insufficient to

show that we were in possession of the subject matter of the pending claims before April 10, 2002 because, according to the Examiner: 1) the submitted declaration does not specifically allege that the acts relied upon to establish the date prior to the Okawa reference were carried out in the United States, a NAFTA country or a WTO member country; and 2) the previously submitted declaration allegedly "does not show possession of the claimed invention, namely a process of making aliphatic polyester multifilament crimped yarn by crimping drawn multifilament fiber in a crimp-providing apparatus that utilizes heated air at 120 -170°C." Action dated July 28, 2009, par. 3.

3. This declaration is submitted to show that we were in possession of the claimed invention including a process of making aliphatic polyester multifilament crimped yarn by crimping drawn multifilament fiber in a crimp-providing apparatus that utilizes heated air at 120 -170°C, before April 10, 2002. Further, all the acts relied upon to establish this date prior to the Okawa reference were carried out in Japan, a WTO country.

4. Before April 10, 2002, the critical date of the Okawa reference, we invented a method of producing an aliphatic polyester multifilament crimped yarn that exhibits a melting point equal to or higher than 130°C, a crimp elongation rate of 3-35% after being processed with boiling water, and a breaking strength of 1-5 cN/dectex. This method involves drawing a non-drawn yarn including a biodegradable polymer containing aliphatic polyester as a main component via two-step drawing processes. The first drawing step involves drawing the non-drawn yarn in a range of 1.01-3 times its original length. The second drawing step involves further drawing the drawn yarn in a range of 1.01-3 times its length, resulting in a total drawing scale of 1.02-9 times the original length. The drawn multifilament fiber is crimped using a crimp-providing apparatus that utilizes heated air at a temperature in a range of 120-170°C to produce a multifilament crimped yarn. A multifilament crimped yarn produced by this method exhibits excellent qualities as a yarn used in making a biodegradable carpet pile.

5. In the previous declaration filed with the Patent Office on April 15, 2009, we submitted a redacted copy of Test Request Cards/Test Result Reports and a redacted copy of Half Monthly Reports by the Industrial Interior Engineering Section/Interior Engineering Section of

Toray Industries (hereinafter "the test reports"). These test reports were dated prior to April 10, 2002, and describe acts that were carried out in Japan, a WTO member country, prior to that date. As described in the previous declaration, these previously submitted test reports show that a crimp yarn was obtained in accordance with the method described above exhibits a crimp elongation rate after being processed with boiling water in a range of 3-35% as claimed. For example, the tables on pages 2-4 of the test reports indicate that the crimp elongation rates of the samples that were tested ranged from 5.0 to 9.0 %. In the tables found on pages 8 and 9 of the test reports, the crimp elongation rates of the tested samples ranged from 7.0-11.3%. In addition, the test reports indicate that Toray has specifically evaluated some samples of the yarn for use in a carpet pile of a Toyota product before the critical date of the Okawa reference.

6. The Examiner has alleged that these previously submitted reports were insufficient to show that we were in possession of "a process of making aliphatic polyester multifilament crimped yarn by crimping drawn multifilament fiber in a crimp-providing apparatus that utilizes heated air at 120 -170°C." Action dated July 28, 2009, par. 3. Accordingly, attached is a data sheet, which describes the processes conditions that were used to produce the yarns described in the test reports described above. This data sheet was dated and prepared prior to April 10, 2002, and describes acts that were carried out in Japan, a WTO member country, prior to that date. The submitted data sheet has been redacted to remove portions not relevant to the claimed invention. In addition, an English translation of the relevant portions of the data sheet is also provided.

7. The submitted data sheet shows that the yarns were prepared utilizing "a process of making aliphatic polyester multifilament crimped yarn by crimping drawn multifilament fiber in a crimp-providing apparatus that utilizes heated air at 120 -170°C." For example, the report states that processes utilized "heated air" as the crimp fluid and utilized a nozzle temperature of 145°C or 143°C.

8. Thus, before April 10, 2002, we were in possession of a method for producing an aliphatic polyester multifilament crimped yarn as described above, the method involving providing a crimp to drawn multifilament fiber including a biodegradable polymer containing an aliphatic

polyester as a main component by using a crimp-providing apparatus that utilizes heated air at 120-170°C to produce a multifilament crimped yarn, in which the aliphatic polyester multifilament crimped yarn comprises a polylactic acid aliphatic polyester having a melting point equal to or higher than 130°C, the multifilament crimped yarn has a crimp elongation rate of 3-35% after being processed with boiling water, and the multifilament crimped yarn has a breaking strength of 1-5 cN/decitex, and in which the yarn is produced by drawing a non-drawn yarn via two-step drawing processes, the two-step drawing processes involving drawing a yarn to 1.01-3 times its length at the first step and to 1.01-3 times its length at the second step, with a drawing scale of 1.02-9 times in total.

6. The undersigned declarants declare that all statements made herein are true and that all statements made on information and belief are believed to be true. Further, these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

We declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Date: Dec. 14th. 2009

Daisuke Yahata
Daisuke YAHATA, first inventor

Date: December 12, 2009

Kazuya Matsumura
Kazuya MATSUMURA, second inventor

Date: December 24. 2009

Shinnichi Nishihata
Shinnichi NISHIHATA, third inventor

Date: December 24, 2009

Motokatsu Nishimura
Motokatsu NISHIMURA, fourth inventor

Date: Dec. 22, 2009

Tatsuro Mizuki
Tatsuro MIZUKI, fifth inventor

Date: Dec. 17th. 2009

Masakatsu Umeda
Masakatsu UMEDA, sixth inventor

Date: Jan. 11, 2010

Takehiko Miyoshi
Takehiko MIYOSHI, seventh inventor

Date: Jan. 16. 2010

Kenzo Kubo
Kenzo KUBO, eighth inventor

CPN test record table

TEST B01-10 Poly(lactic Acid Fiber) CPN test study

| | | | |
|---------------------|--|---|---|
| | sp | 17 | 18 |
| raw fiber | DSD raw fiber | A3.1 | A3.1 |
| | CPN Product Name | 3102-5 | 3102-4 |
| | | 1170-68-PLA | 1170-68-PLA |
| draw conditions | drawing rate | 500 | 500 |
| | a number of drawing step | 3 | 3 |
| | set temperature °C | 140 | 154 |
| | a shape of cross section | Y-shaped | Y-shaped |
| raw fiber qualities | Total Fineness | 981 | 980 |
| | Strength | cN/decitex | cN/decitex |
| | Elongation | 3.19 | 3.03 |
| | nozzle temperature | % | 34.9 |
| | nozzle pressure | °C | 143 |
| | quantity of flow at nozzle | kg/cm ² | 3.0 |
| | type of nozzle | liter | 153 |
| | crimp fluid | — | 2 filaments |
| | | variable quantity of fluid air (dry heated air) | variable quantity of fluid air (dry heated air) |
| fiber qualities | Total Fineness | decitex | 1099 |
| | Strength | cN/decitex | 1.51 |
| | Elongation | % | 35.6 |
| | Boiling Water Shrinkage | % | 2.8 |
| | crimp elongation rate | % | 1.7 |
| | crimp elongation rate after being processed with boiling water | % | 11.6 |
| | Grimp Number | number/inch | 7.9 |